



15 July 2019

*Via Electronic Mail*

Mr. Matt McClincy  
Oregon Department of Environmental Quality  
Northwest Region  
700 NE Multnomah St, Suite 600  
Portland, OR 97232

Reference: 0501244

Subject: Quarter 2, 2019, Progress Report  
(April through June 2019)  
Arkema Inc. Portland Plant

Dear Mr. McClincy:

ERM-West, Inc. (ERM) is submitting this Quarterly Progress Report (QPR) on behalf of Retia USA/Legacy Site Services LLC (LSS) agent for Arkema Inc. (Arkema) to summarize Quarter 2, 2019, activities at the Arkema facility located at 6400 NW Front Avenue in Portland, Oregon.

Paragraph 8(G) of the Order on Consent Requiring Source Control Measures and Feasibility Study between the Oregon Department of Environmental Quality (ODEQ) and LSS, dated 31 October 2008, requires submittal of QPRs. The following progress report summarizes activities for Quarter 2, 2019 (April through June).

Weekly progress summaries for implementation of the stormwater and groundwater source control measures (SCM) have been developed over the duration of the construction project. The reports for Quarter 2, 2019, are included as Attachment 1 to this QPR for reference, and activities documented in the reports are not duplicated in this letter.

#### **Actions Taken Quarter 2, 2019 (April through June)**

On 9 April 2019, ERM, on behalf of LSS, collected a grab stormwater sample at the effluent sampling location and submitted it to the Test America lab for analysis.

On 15 April 2019, ERM, on behalf of LSS, submitted the February 2019 monthly Discharge Monitoring Report (DMR) for National Pollutant Discharge Elimination System (NPDES) permit compliance monitoring of the Groundwater Extraction and Treatment (GWET) System.

On 15 April 2019, ERM, on behalf of LSS, submitted the QPR for Quarter 1, 2019, to ODEQ.

On 15 April 2019, ERM, on behalf of LSS, submitted the March 2019 monthly DMR for the performance monitoring of the stormwater SCM to ODEQ.

On 17 April 2019, ERM, on behalf of LSS, performed stormwater flow inspections.

On 14 May 2019, representatives of ERM, on behalf of LSS, met on-site with ODEQ to discuss changes in ODEQ personnel and status of the Arkema facility.

On 15 May 2019, ERM, on behalf of LSS, submitted the March 2019 monthly DMR for NPDES permit compliance monitoring of the GWET system.

On 15 May 2019, ERM, on behalf of LSS, submitted the April 2019 monthly DMR for the performance monitoring of the stormwater SCM to ODEQ.

On 28 May 2019, ERM, on behalf of LSS, submitted a Stormwater Ditch Excavation Memo documenting the November 2018 excavation of soil contaminated with oil in the stormwater channel and 2 February 2019 and 5 March 2019 haul and disposal of excavated materials.

On 31 May 2019, LSS received responses to the September 2018 Draft GWET System Effectiveness Evaluation report from ODEQ.

On 4 June 2019, ERM, on behalf of LSS, performed stormwater operations and maintenance inspections.

On 7 June 2019, ERM, on behalf of LSS, submitted the April 2019 monthly DMR for NPDES permit compliance monitoring of the GWET system.

On 7 June 2019, ERM, on behalf of LSS, submitted the May 2019 DMR for the performance monitoring of the stormwater SCM to ODEQ.

On 11 June 2019, ERM, on behalf of LSS, submitted a Follow-Up Report of Upset Condition – Groundwater Extraction and Treatment System to ODEQ documenting results from the root cause analysis investigations performed by ERM and LSS relating to the 16 February 2019 GWET upset condition, the actions that will be taken to minimize potential for future spills and mitigate impacts of any future spill that may occur at the Site, and a summary of the activities performed following submittal of the Report of Upset Condition.

On 19 June 2019, LSS received responses to the 23 May 2019 Stormwater Ditch Excavation Memo from ODEQ.

On 27 June 2019, ERM on behalf of LSS, notified ODEQ about a brief power outage that caused an interruption in GWET operations.

### **Actions Scheduled for Quarter 3, 2019 (July through September)**

The QPR for Quarter 3, 2019, will be prepared and submitted.

LSS will continue to monitor discharges from the stormwater SCM and submit monthly monitoring reports to ODEQ.

LSS will continue to monitor discharges from the groundwater SCM and submit monthly DMRs to ODEQ.

LSS will continue startup and optimization of the GWET system as part of the implementation of the groundwater SCM and in accordance with GWET System Corrective Action Plan and associated updates.

LSS will conduct routine maintenance on the stormwater SCM.

LSS will submit monthly status reports consistent with the Performance Monitoring Plan and per the ODEQ letter ODEQ Review "Draft GWET System Effectiveness Evaluation Report" received on 31 May 2019.

### Summary of Validated Data

Data for weekly compliance and quarterly characterization sampling of the GWET system were received and validated. These data were presented in the respective monthly DMRs.

Data for monthly stormwater sampling were received and validated. These data were presented in the respective monthly DMRs.

### Problems Experienced During Quarter

Specific problems experienced during the GWET system startup and optimization are documented in the attached weekly progress reports. No other problems were experienced during Quarter 2, 2019.

### Closing

If you have questions or comments pertaining to this progress report, please contact us at (503) 488-5282.

Sincerely,



Brendan A. Robinson, P.E.  
Partner



Erica Whiting  
Project Manager

### Attachments

cc: Todd Slater, LSS  
Lance Peterson, CDM  
Sean Sheldrake, USEPA  
Karen Traeger, LSS  
Steve Parkinson, Joyce Ziker Parkinson  
David Livermore, Integral

**ATTACHMENT 1      QUARTER 2, 2019, WEEKLY PROGRESS REPORTS**



**Groundwater Extraction and Treatment (GWET) System Weekly Progress Report**  
**Week from: 29 March 2019 to 4 April 2019**  
**Former Arkema Facility, Portland, Oregon**

**Plant Operations**

Groundwater extraction at select recovery wells, treatment, and discharge proceeded continuously. Uptime for the reporting period was 100%. The average system influent flow rate was 19.6 gpm. Recovery wells RW-05, RW-6i, RW-9i through RW-16i, and RW-18i through RW-26i were in operation during the reporting period.

Notable activities that occurred within the reporting period include the following:

- Friday, 29 March 2019: Continued dewatering frac tanks to T-5.
- Sunday, 31 March 2019: Backwashed LGAC-INT1 (CT-1) and LGAC-INT2 (CT-2).
- Monday, 1 April 2019: Continued dewatering frac tanks to T-5. Attempted monthly water level event, but the water level meter was malfunctioning. A rental meter will be used for water levels next week. Cleaned 1-Hp pump to be changed out at recovery well RW-23.
- Tuesday, 2 April 2019: Continued dewatering frac tanks to T-5. Caustic CFP-1 pump was off, pH was 6.54, restarted pump and slowly adjusted pH to 6.90 → 7.00 then 7.20 → 7.30. J. Hancock on-site for site visit of frac tanks, recovery wells, transducer vaults, and GWET plant.
- Wednesday, 3 April 2019: Continued dewatering frac tanks to T-5. Procured lay-flat hoses from United Rental and cleaned out the empty frac tanks with water. Recalibrated YSI-556 end of day. Adjusted flow rate at recovery well RW-14 to maintain a constant flow rate of 2.0 gpm, will recalibrate/troubleshoot the totalizer as it keeps going into a hardware fault.
- Thursday, 4 April 2019: Demobilized two empty frac tanks from site. Draining cone bottom tank for sludge management. FBR feed pump P-5 humming, Cochran to troubleshoot.

**Sampling**

- LGAC check samples collected 1 April 2019.
- Weekly compliance samples collected 3-4 April 2019.



**Groundwater Extraction and Treatment (GWET) System Weekly Progress Report**  
**Week from: 5 April 2019 to 11 April 2019**  
**Former Arkema Facility, Portland, Oregon**

**Plant Operations**

Groundwater extraction at select recovery wells, treatment, and discharge proceeded continuously. Uptime for the reporting period was 100%. The average system influent flow rate was 25.4 gpm. Recovery wells RW-05, RW-6i, RW-9i through RW-16i, and RW-18i through RW-26i were in operation during the reporting period.

Notable activities that occurred within the reporting period include the following:

- Friday, 5 April 2019: Continued dewatering frac tanks to T-5. Airlifted the sand-filter (SF-1). Backwashed LGAC-INT1 (CT-1) and LGAC-INT2 (CT-2). Changed out pump at recovery well RW-23 with clean 1-Hp pump.
- Monday, 8 April 2019: Continued dewatering frac tanks to T-5. M. Hemphill from Cochran Electric troubleshoot malfunctioning pumps/motors in GWET building. Pump P6 had a jammed starter and bad fuse, Cochran unjammed the starter and moved fuse from P7 to P6. Pump P6 currently functional but need to procure a new starter. Pump P2 is a seized pump and has been under lock out tag out (LOTO). Tested pump P9, is currently working. Pump P7 has a seized motor at 85 amps; need a new fuse and has been LOTO. Pump P3 was bump tested and running ok. Pump P5 needs new bearings. P1, P4, P8, and P10 have no issues.
- Tuesday, 9 April 2019: Performed water level measuring event with rental water level meter at 83 wells. Continued dewatering frac tanks to T-5.
- Wednesday, 10 April 2019: Continued dewatering frac tanks to T-5. Recollected transducer cable lengths at PA-08, PA-09, MWA-47, RW-5, RW-10, RW-15, and RW-22. Mobilized to beach to attempt to collect river samples but river current flowing too fast for the RC boat.
- Thursday, 11 April 2019: Continued dewatering frac tanks to T-5. Cleaned 1-Hp pump to be changed out at recovery well RW-23. Packed and shipped 1-inch and 2-inch pumps for repair by Great Western Pump. Shipped rental water level meter to Pine Environmental.

**Sampling**

- LGAC check samples collected 8 April 2019.
- Weekly compliance samples collected 10-11 April 2019.
- Stormwater samples collected 9 April 2019.



**Groundwater Extraction and Treatment (GWET) System Weekly Progress Report**  
**Week from: 12 April 2019 to 18 April 2019**  
**Former Arkema Facility, Portland, Oregon**

**Plant Operations**

Groundwater extraction at select recovery wells, treatment, and discharge proceeded continuously. Uptime for the reporting period was 100%. The average system influent flow rate was 25.6 gpm. Recovery wells RW-05, RW-6i, RW-9i through RW-13i, RW-15 through RW-16i, and RW-18i through RW-26i were in operation during the reporting period.

Notable activities that occurred within the reporting period include the following:

- Friday, 12 April 2019: Continued dewatering frac tanks to T-5. Airlifted the sand-filter (SF-1). Backwashed LGAC-INT1 (CT-1) and LGAC-INT2 (CT-2). Changed out pump at recovery well RW-23 with clean 1-HP pump.
- Monday, 15 April 2019: Began frac tank cleaning and continued dewatering frac tanks to T-5.
- Tuesday, 16 April 2019: Continued cleaning frac tanks. West Coast Marine transported two pretreatment sludge boxes to the Roosevelt Landfill Disposal facility.
- Wednesday, 17 April 2019: Tank T-7 sludge management.
- Thursday, 18 April 2019: Continued cleaning frac tanks. Cleaned 1-HP pump from recovery well RW-23 change out. Tank T-7 sludge management.

**Sampling**

- LGAC check samples collected 15 April 2019.
- Weekly compliance samples collected 17 April –18 April 2019.



**Groundwater Extraction and Treatment (GWET) System Weekly Progress Report**  
**Week from: 19 April 2019 to 25 April 2019**  
**Former Arkema Facility, Portland, Oregon**

**Plant Operations**

Groundwater extraction at select recovery wells, treatment, and discharge proceeded continuously. Uptime for the reporting period was 100%. The average system influent flow rate was 25.5 gpm. Recovery wells RW-05, RW-6i, RW-9i through RW-13i, RW-15 through RW-16i, and RW-18i through RW-26i were in operation during the reporting period.

Notable activities that occurred within the reporting period include the following:

- Friday, 19 April 2019: Continued dewatering frac tanks to T-5. Changed out pump at recovery well RW-23 with clean 1-HP pump. United Rental picked up four frac tanks; one was left on-site to dewater. Hach DRB200 heater for COD reagent test failed to stay on and restarted. Installed backup COD heater and restarted COD reagent test. Recalibrated RW-26i transducer and changed LTE value from -9.24 feet to -10.00 feet. Began recirculating water from tank T-6 to tank T-3.
- Sunday, 21 April 2019: Stopped recirculating water from tank T-6 to tank T-3. The average ORP was -40 mV.
- Monday, 22 April 2019: Continued dewatering frac tank to T-5. Cochran Electric replaced motor starter on pump P-6, placed P-6 back in service, and took pump P-5 out of service. Removed pump P-2 10-HP motor. Removed lock out tag out and capped influent/effluent valves. Increased CFP-8 acetic acid pump stroke length from 68% to 70%.
- Tuesday, 23 April 2019: Set up Apple watch for lone worker program. Packed and shipped air-end kits for 1-inch and 2-inch Sandpiper pumps to Great Western Pump for repairs. Decreased CFP-8 acetic acid pump stroke length from 70% to 68%.
- Wednesday, 24 April 2019: Dewatered final frac tank to T-5 at 20 gpm. Mobilized to beach for in-stream river sample collection. The pH and temperature were 7.4 and 66.5 °F, respectively. Decreased CFP-8 acetic acid pump stroke length from 68% to 65%.
- Thursday, 25 April 2019: Began cleaning final frac tank. Cleaned 1-HP pump for recovery well RW-23 change out. Decreased CFP-8 acetic acid pump stroke length from 65% to 60%.

**Sampling**

- LGAC check samples collected 22 April 2019.
- Weekly compliance samples collected 24-25 April 2019.
- In-stream river samples collected 24 April 2019.





**Groundwater Extraction and Treatment (GWET) System Weekly Progress Report**  
**Week from: 26 April 2019 to 2 May 2019**  
**Former Arkema Facility, Portland, Oregon**

**Plant Operations**

Groundwater extraction at select recovery wells, treatment, and discharge proceeded continuously. Uptime for the reporting period was 100%. The average system influent flow rate was 25.7 gpm. Recovery wells RW-05, RW-6i, RW-9i through RW-13i, RW-15 through RW-16i, and RW-18i through RW-26i were in operation during the reporting period.

Notable activities that occurred within the reporting period include the following:

- Friday, 26 April 2019: Cleaned hoses from frac tank and returned to United Rentals. Measured length of cable from MCC-R2 to monitoring well MWA-58d, approximately 300 feet.
- Saturday, 27 April 2019: FBR-REC ORP was -20 mV. Calibrated Hach ORP probe with 1-point calibration (240 mV solution); ORP was 15 mV after calibration. Disconnected acetic acid line from FBR-REC to inspect CFP-8 flow rate. Confirmed flow at 100% stroke length. Increased CFP-8 acetic acid pump stroke length from 65% to 70%. Repaired clogged tubing at EA-640/EA-230 make-down polymer pump.
- Monday, 29 April 2019: Removed failed pump/motor P-7 from FBR-REC piping. United Rentals picked up final frac tank and equipment.
- Tuesday, 30 April 2019: West Coast Marine transported two pre-treatment sludge boxes to the Roosevelt Landfill Disposal facility. Backwashed LGAC-INT1 (CT1). Performed airlift on sand-filter (SF1). Northstar Chemical rep, C. Hildebrandt, on-site to conduct recovery well RW-23 jar tests. Samples collected for dissolved metals analysis.
- Wednesday, 1 May 2019: Mobilized to beach to collect in-stream river samples. The pH and temperature were 7.2 and 67.5 °F, respectively.
- Thursday, 2 May 2019: Set up make-down polymer tote and water line for tie into tank T-7 wasting line for wasting T-7.

**Sampling**

- LGAC check samples collected 29 April 2019.
- Weekly compliance samples collected 1-2 May 2019.
- In-stream river samples collected 1 May 2019.



**Groundwater Extraction and Treatment (GWET) System Weekly Progress Report**  
**Week from: 3 May 2019 to 9 May 2019**  
**Former Arkema Facility, Portland, Oregon**

**Plant Operations**

Groundwater extraction at select recovery wells, treatment, and discharge proceeded continuously. Uptime for the reporting period was 100%. The average system influent flow rate was 25.6 gpm. Recovery wells RW-05, RW-6i, RW-9i through RW-13i, RW-15 through RW-16i, and RW-18i through RW-25 were in operation during the reporting period.

Notable activities that occurred within the reporting period include the following:

- Friday, 3 May 2019: Mobilized to well field to tighten all transducer cord grips and ensure zip-ties were in place. PA-16i requires a new cord grip. Cleaned the plate separator (PS-1). Performed loop power and WTE tests on transducers at PA-05 and PA-19d. Changed out 1-Hp pump at recovery well RW-23.
- Tuesday, 7 May 2019: LOTO breaker 21 to change out failed receptacle. Tested recovery well RW-14 motor leads and disconnect. The motor and disconnection were at 43 ohms and 0 ohms, respectively. These results indicated faulting inside RW-14 VFD.
- Wednesday, 8 May 2019: Lowered CFP-8 acetic acid from 65% to 63% stroke length. The 24-hour average ORP was -340 mV.
- Thursday, 9 May 2019: West Coast Marine transported two pre-treatment sludge boxes to the Roosevelt Landfill Disposal facility. Recirculating water from tank T-6 to tank T-3. The 24-hour average ORP was -350 mV. Assembled 1 HP pump for recovery well RW-23 change out.

**Sampling**

- LGAC check samples collected 6 May 2019.
- Weekly compliance samples collected 8-9 May 2019.

**Groundwater Extraction and Treatment (GWET) System Weekly Progress Report**  
**Week from: 10 May 2019 to 16 May 2019**  
**Former Arkema Facility, Portland, Oregon**



### **Plant Operations**

Groundwater extraction at select recovery wells, treatment, and discharge proceeded continuously. Uptime for the reporting period was 100%. The average system influent flow rate was 25.5 gpm. Recovery wells RW-05, RW-6i, RW-9i through RW-13i, RW-15 through RW-16i, and RW-18i through RW-25 were in operation during the reporting period.

Notable activities that occurred within the reporting period include the following:

- Friday, 10 May 2019: S. Lucas programmed an alarm that will be sent to operators if pump P-PS-4 fails to start after an hour. Changed out 1 HP pump at recovery well RW-23; pressure was 20 psi. The 10 HP motors for P-2 and P-7 were picked up by HPS for repairs. Backwashed LGAC-INT1 (CT1). Procured Fluke Ammeter from Platt for transducer and flow meter calibrations. Calibrated GWET-EFF flow meter.
- Saturday, 11 May 2019: Created backup of historian data on portable hard drive.
- Monday, 13 May 2019: Monthly water level event at 83 well locations.
- Tuesday, 14 May 2019: Streimer Mechanical on-site to work on HVAC at Admin Office. Recalibrated tank T-6 pH probe. Replaced start relay for pump PPS-1.
- Wednesday, 15 May 2019: Recalibrated all turbidimeters in the GWET building. Assessed conduit from main control room to Conex box to supply power to the ISCO stormwater sampler.
- Thursday, 16 May 2019: Cleaned 1 HP pump for change out at recovery well RW-23. Streimer Mechanical on-site to troubleshoot HVAC at Admin Office.

### **Sampling**

- LGAC check samples collected 13 May 2019.
- Quarterly compliance samples collected 15-16 May 2019.



**Groundwater Extraction and Treatment (GWET) System Weekly Progress Report**  
**Week from: 17 May 2019 to 23 May 2019**  
**Former Arkema Facility, Portland, Oregon**

**Plant Operations**

Groundwater extraction at select recovery wells, treatment, and discharge proceeded continuously. Uptime for the reporting period was 100%. The average system influent flow rate was 25.7 gpm. Recovery wells RW-05, RW-6i, RW-9i through RW-13i, RW-15 through RW-16i, and RW-18i through RW-26 were in operation during the reporting period.

Notable activities that occurred within the reporting period include the following:

- Friday, 17 May 2019: Cleared out clog at top decant valve in tank T-7. Changed out 1 HP pump at recovery well RW-23. Airlifted the Sand-Filter (SF-1).
- Monday, 20 May 2019: Site-wide fire extinguisher inspection. The technician took four fire extinguishers due for additional service and left four loaner extinguishers.
- Tuesday, 21 May 2019: Installed new watertight box at failed transducer PA-16i.
- Wednesday, 22 May 2019: West Coast Marine transported two pretreatment sludge boxes to the Roosevelt Landfill Disposal facility. Cleaned 1 HP pump for change out at recovery well RW-23. Troubleshoot transducers at PA-19d, PA-08, and PA-16i. PA-19d and PA-08 passed water table elevation (WTE) test. Confirmed water column reading with depth to water measurement. Will replace I/O card at PA-16i at RW-26.
- Thursday, 23 May 2019: Changed out 1 HP pump at recovery well RW-23.

**Sampling**

- LGAC check samples collected 20 May 2019.
- Weekly compliance samples collected 22-23 May 2019.

**Groundwater Extraction and Treatment (GWET) System Weekly Progress Report**  
**Week from: 24 May 2019 to 30 May 2019**  
**Former Arkema Facility, Portland, Oregon**



**Plant Operations**

Groundwater extraction at select recovery wells, treatment, and discharge proceeded continuously. Uptime for the reporting period was 100%. The average system influent flow rate was 25.5 gpm. Recovery wells RW-05, RW-6i, RW-9i, RW-11 through RW-13i, RW-15 through RW-16i, and RW-18i through RW-26i were in operation during the reporting period.

Notable activities that occurred within the reporting period include the following:

- Friday, 24 May 2019: Wasted tank T-7 into pretreatment sludge boxes #4 and #5. Northstar Chemicals, M-1883, delivered on-site. Caustic, coagulant, and EA640 polymer batched.
- Monday, 27 May 2019: Performed airlift on Sand Filter (SF-1)
- Tuesday, 28 May 2019: Bench tested old/used transducers. Three of seven transducers were designated "good." Mock photos taken of the river sampling RC boat. Cleaned 1 HP pump for change out at recovery well RW-23.
- Wednesday, 29 May 2019: West Coast Marine transported two pretreatment sludge boxes to the Roosevelt Landfill Disposal facility. Videos taken of the river sampling RC boat.
- Thursday, 30 May 2019: West Coast Marine transported two pretreatment sludge boxes to the Roosevelt Landfill Disposal facility.

**Sampling**

- LGAC check samples collected 27 May 2019.
- Weekly compliance samples collected 29-30 May 2019.

**Groundwater Extraction and Treatment (GWET) System Weekly Progress Report**  
**Week from: 31 May 2019 to 6 June 2019**  
**Former Arkema Facility, Portland, Oregon**



**Plant Operations**

Groundwater extraction at select recovery wells, treatment, and discharge proceeded continuously. Uptime for the reporting period was 100%. The average system influent flow rate was 25.8 gpm. Recovery wells RW-05, RW-6i, RW-9i through RW-12, RW-15 through RW-16i, and RW-18i through RW-26i were in operation during the reporting period.

Notable activities that occurred within the reporting period include the following:

- Friday, 31 May 2019: West Coast Marine delivered two pretreatment boxes on-site. Cleaned out both pretreatment boxes and prepped for wasting T-7. Changed out pump at RW-23 and RW-10.
- Monday, 3 June 2019: Wasted T-7 into rental box. Plant shutdown at 10:50 for MWA-58(d) transducer cable change out. Plant restarted at 14:40.
- Tuesday, 4 June 2019: Historian download test. Purge and well development at PA-19(d).
- Wednesday, 5 June 2019: Change out of totalizers at RW-24i and RW-17.
- Thursday, 6 June 2019: Historian download.

**Sampling**

- LGAC check samples collected 3 June 2019.
- Weekly compliance samples collected 5-6 June 2019.



**Groundwater Extraction and Treatment (GWET) System Weekly Progress Report**  
**Week from: 7 June 2019 to 13 June 2019**  
**Former Arkema Facility, Portland, Oregon**

**Plant Operations**

Groundwater extraction at select recovery wells, treatment, and discharge proceeded continuously. Uptime for the reporting period was 100%. The average system influent flow rate was 25.5 gpm. Recovery wells RW-05, RW-6i, RW-9i through RW-12, RW-15 through RW-16i, and RW-18i through RW-26i were in operation during the reporting period.

Notable activities that occurred within the reporting period include the following:

- Friday, 7 June 2019: Cochran on-site to troubleshoot administrative building electrical. Cochran installed conduit for ISCO sampler power. Evoqua on-site for carbon change-out preparation and information. Changed out pump at RW-23.
- Sunday, 9 June 2019: RW-23 totalizer calibrated.
- Monday, 10 June 2019: Site-wide groundwater level monitoring event conducted. Cochran on-site to troubleshoot transducers and look at MCC rooms.
- Tuesday, 11 June 2019: Wasted tank T-7. Batched Polymer EA230 and EA640.
- Wednesday, 12 June 2019: General O&M tasks. Started weekly compliance sampling.
- Thursday, 13 June 2019: West Coast Marine delivered two pretreatment boxes on-site.

**Sampling**

- LGAC check samples collected 10 June 2019.
- Weekly compliance samples collected 12-13 June 2019.



**Groundwater Extraction and Treatment (GWET) System Weekly Progress Report**  
**Week from: 14 June 2019 to 20 June 2019**  
**Former Arkema Facility, Portland, Oregon**

### **Plant Operations**

Groundwater extraction at select recovery wells, treatment, and discharge proceeded continuously. Uptime for the reporting period was 100%. The average system influent flow rate was 22.3 gpm. Recovery wells RW-6i, RW-9i through RW-12, RW-15 through RW-16i, and RW-18i through RW-26i were in operation during the reporting period.

Notable activities that occurred within the reporting period include the following:

- Friday, 14 June 2019: Continued vegetation removal at MCC-R3. Replaced pump at recovery well RW-23 with clean 1 HP pump. AEC on-site to conduct conceptual design for secondary containment. Reconnected HVAC ductwork in administrative building.
- Saturday, 15 June 2019: Continued vegetation removal at MCC-R3 and gradient cluster GC-5 and 6.
- Sunday, 16 June 2019: Transferred spent bag filters to Bio Box #2.
- Monday, 17 June 2019: Site visit from Total. Cochran on-site to troubleshoot noise associated with recovery well RW-26i transducer and piezometer PA-15i. A process meter was used in simulation mode to replace transducer at PA-15i and still received noise. A new cable was placed above ground and still received process meter noise. Further troubleshooting is needed. Recovery well RW-14 will not start, increased VFD amp settings to 2 amps as per Allen Bradley's instructions. Still receiving hardware fault; further troubleshooting needed.
- Tuesday, 18 June 2019: Completed 6 months of Historian data download for TwinThread team.
- Wednesday, 19 June 2019: FactoryTalk Historian upgrade commenced. In-stream river sampling with RC boat.
- Thursday, 20 June 2019: West Coast Marine transported two pretreatment sludge boxes to the Roosevelt Landfill Disposal facility. Continued FactoryTalk Historian upgrade. Organized chemical totes on bio-side of plant. Continued vegetation removal. Cleaned 1 HP pump for recovery well RW-23.

### **Sampling**

- LGAC check samples collected 17 June 2019.
- In-stream river samples collected 19 June 2019.
- Weekly compliance samples collected 19-20 June 2019.





**Groundwater Extraction and Treatment (GWET) System Weekly Progress Report**  
**Week from: 21 June 2019 to 27 June 2019**  
**Former Arkema Facility, Portland, Oregon**

### **Plant Operations**

Groundwater extraction at select recovery wells, treatment, and discharge proceeded continuously. Uptime for the reporting period was 100%. The average system influent flow rate was 21.2 gpm. Recovery wells RW-10 through RW-12, RW-18i through RW-23, and RW-25 were in operation during the reporting period.

Notable activities that occurred within the reporting period include the following:

- Friday, 21 June 2019: FactoryTalk Historian upgrade from v3 to v6 completed. Unable to view historical data, reinstall needed. Changed fouled 1 HP pump at recovery well RW-23. Changed fouled ½ HP pump at recovery well RW-05. Backwashed LGAC-INT1 (CT1).
- Monday, 24 June 2019: Tested new watertight cable connectors for install at transducer and flow meter locations. Assembled new YSI Professional Plus hand held meter to replace YSI 556.
- Tuesday, 25 June 2019: Recalibrated new YSI Professional Plus pH, conductivity, and ORP. FactoryTalk Historian upgrade from v3 to v6 completed and tested. S. Lucas instructed operators to turn off the circuit breaker for the flow meter at RW-26i then the noise disappeared. M. Hemphill from Cochran suggests we disconnect the shield wire of the flow meter from the network card. Changed out failed transducer at PA-16i.
- Wednesday, 26 June 2019: Mobilized to wellfield to pull pumps at recovery wells RW-5, RW-6i, RW-24i, RW-9i, RW-15, RW-16i, and RW-18 for well redevelopment. Brief power outage at the plant due to thunderstorm. Well field and all processes in GWET building were shut down. Operators restarted plant including stormwater ISCO sampler, compliance auto-sampler, and air compressor.
- Thursday, 27 June 2019: Tank T1 overflowed to concrete pad causing flooding on pretreatment side of GWET building. On-call operator shutdown well field, troubleshot LCP1 panel and found 24-volt UPS power supply failed due to earlier power outage. Restarted UPS power supply, cleaned up flooded floor, returned power to acetic acid pump (GFI tripped), and restarted plant. Cleaned 1 HP pump for RW-23 change-out.

### **Sampling**

- LGAC check samples collected 24 June 2019.
- Weekly compliance samples collected 26-27 June 2019.